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ABSTRACT

The geography lesson plans in this collection were developed by Indiana junior high and high school teachers. There are ten lessons: (1) "Absolute Location Using GPS Technology" (Attachment 1 Powerpoint Presentation); (2) "Can You Find Me Now? Can You Find Me Now? Can You Find Me Now?" (Worksheet); (3) "Can You Give Me Directions to the Game"; (4) "Cultural Anthropology Study Using the Fundamentals of Geography and GPS" (Cultural Anthropology Rubric); (5) "Discovering the Past Using the Future: Remote Sensing and the Lost City of Ubar" (Worksheet 1, Worksheet 2, Worksheet 3, Map Exercise); (6) "'Donde en el Mondo Estas?' (Where in the World Are You?)" (Attachment 1 Powerpoint Presentation, Handout List of How To, Handout Student Checklist); (7) "Eagle Creek Park (A Hike)" (Attachment 1 Topographical Map of Eagle Park, Attachment 1 Aerial Map of Eagle Creek, Attachment 3 Heron's Formula, Attachment 4 Student Log); (8) "Go West My Class: Geography Education on the Road Again (as in the Information Superhighway)" (Worksheet); (9) "Got Park? Or If You Build It, They Will Come!"; and (10) "Predicting Nations at Risk" (Assessment, Student Instruction Sheet, Suggested Country/Regional Lists). Lesson plans suggest time needed and appropriate grade level; state a purpose/rationale; address Indiana state standards; cite educational objectives; list materials needed; give a step-by-step procedure for lesson implementation; discuss assessment and extensions; and list resources. (BT)

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Geography Educators' Network of Indiana, Inc.

Geotech Institute Lesson Plans June 2002

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Geotech Institute Lesson Plans

Table of Contents

Absolute Location Using GPS Technology 3

Attachment 1 – Powerpoint Presentation 5

Can You Find Me Now? Can You Find Me Now? Can You Find Me Now? 14

Can You Find Me Now? Worksheet 16

Can You Give Me Directions to the Game 18

Cultural Anthropology Study Using the Fundamentals of Geography and GPS. 22

Cultural Anthropology Rubric 26

Discovering the Past Using the Future: Remote Sensing and the Lost City of Ubar 27

Student Worksheet 1 31
Student Worksheet 2 32
Student Worksheet 3 33
Student Map Exercise 35

Donde en el mundo estas? (Where in the world are you?) 36

Attachment 1 – Powerpoint Presentation 39
Handout – List of How To... 52
Handout – Student Checklist 54

Eagle Creek Park (A Hike) 55

Attachment 1 – Topographical Map of Eagle Creek 58
Attachment 2 – Aerial Map of Eagle Creek 59
Attachment 3 – Heron's Formula 60
Attachment 4 – Student Log 62

Go West My Class: Geography Education On The Road Again (as in the information superhighway). 64

Student Worksheet – Go West My Class 67

Got Park? Or If you build it, they will come! 70

Predicting Nations at Risk 78

Nations at Risk Assessment 84
Student Instruction Sheet for Nations at Risk 86
Suggested Country/Regional Lists. 89

Absolute Location Using GPS Technology

By: Kevin A. Tholin
LaSalle High School,
South Bend, Indiana USA
June 14, 2002

Classroom sessions/estimated time: two 55-minute class sessions (1 lecture/worksheets, 1 GPS activity)

Grade level(s): 9th Grade

Purpose/rationale: Students need to be aware of the grid system and GPS technology to function successfully in today's information-based economy.

Indiana Social Studies Academic Standard addressed:
WG 1.1: Explain the Earth's grid system, and be able to locate places using degrees of latitude and longitude.
WG 1.3: Use locational technology in order to establish spatial relationships.

Objectives: Students should be able to:

1. understand the difference between absolute and relative location.
2. use the standard grid system coordinate system.
3. use Global Positioning Systems in order to establish spatial relationships.

Background: Students should be aware of directions.

Materials Required:

- World Geography textbook
- PowerPoint presentation http://www.iupui.edu/~geni/lsort/pp_kt.ppt
- Worksheets
- GPS unit
- Prizes for GPS activity

Procedure:
Day 1: Opening Activity
As they enter the classroom, students will be given a coordinates card (e.g. A-7, D-3) for their seat location. After all of the students are seated, explain the grid system they used to find their seat is similar to the grid system used for locating places on the globe.

PowerPoint Presentation
Teacher will lecture with the aid of a PowerPoint presentation.

Guided Practice
Teacher will use a page in the book explaining how the global grid system works. Students will answer the questions that appear at the end of the section.

Independent Practice
Geography skilld activity worksheets

Day 2: GPS field activity
Students will be introduced a standard, inexpensive GPS unit.
Students will be split into pairs, given one GPS unit, and a set of coordinates.
The teacher demonstrates how data is entered into the GPS unit.
Each pair of students follows the directions of the GPS unit to find the prize.

Assessment: verbal feedback, participation, worksheets, GPS activity

Adaptations/Extensions: UTM system
Interested students will be introduced to the Universal Transverse Mercator grid system.

Resources:
Hall, Bob E. and Robert C. Barr
"GPS and GIS" PowerPoint presentation, June 2002
Center for Earth and Environmental Services, IUPUI

"GPS/GPS" National Park Service, Chihuahuan Desert Lab
http://www.nps.gov/cave/desertlb/gis.htm

N.G. Terry, Jr. "How to Read the Universal Transverse Mercator (UTM) Grid"
From GPS World, April 1996, pp. 32, Advanstar Communications, Eugene, OR.
http://www.nps.gov/prwi/readutm.htm

WHERE IS IT?

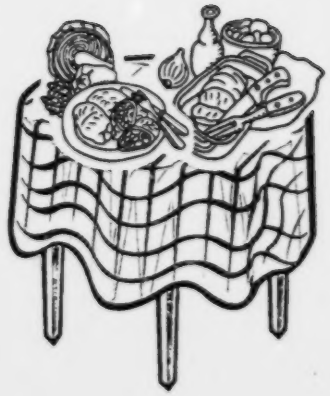
Absolute & Relative

Location

&

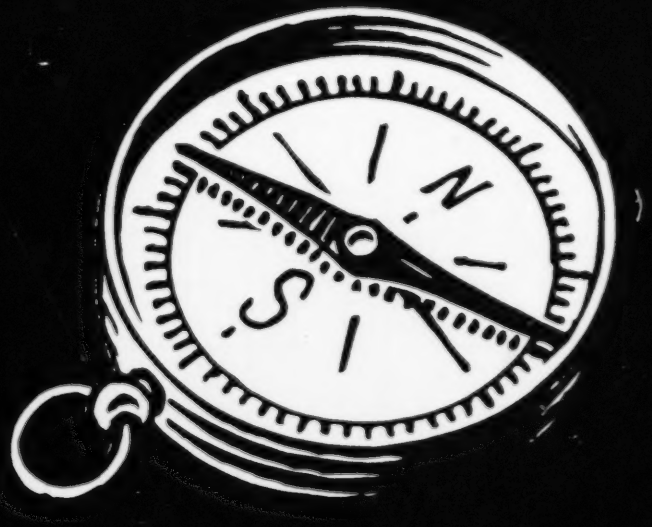
GPS Technology

If you wanted to invite your teachers to dinner, and they didn't know where you live, what instructions would you give them?



NAVIGATION

the method of determining position, course, and distance traveled



NAVIGATION answers the question:

HOW DO I GET THERE?

NAVIGATION SYSTEMS:

- **LANDMARK NAVIGATION**
- **DEAD RECKONING**
- **DIRECTIONS/DISTANCES**
- **CELESTIAL**

RELATIVE LOCATION

where a place is located in RELATION to other places

ABSOLUTE LOCATION

the precise position on the globe as measured on the grid system

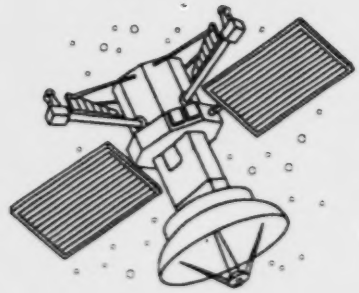
ABSOLUTE LOCATION

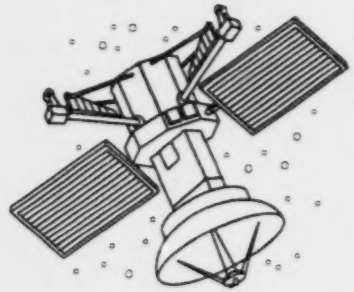
is measured in

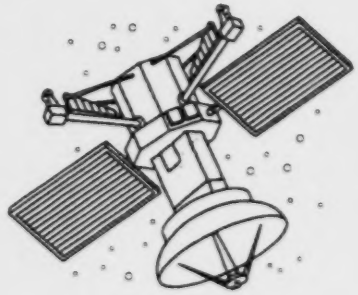
DEGREES (°)

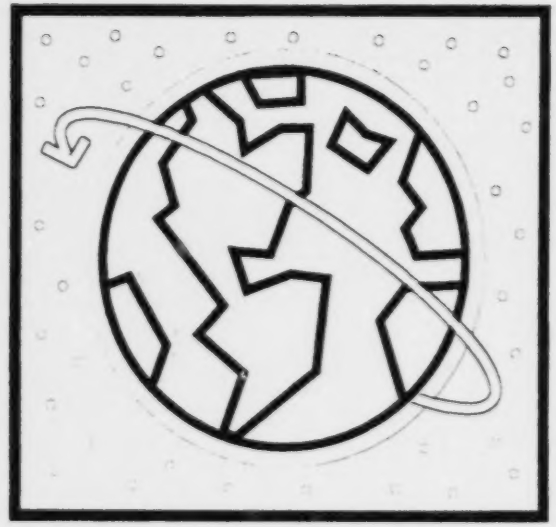
Global Positioning Systems (GPS)

- a PRECISE global positioning system
- developed and maintained by the Department of Defense
- consists of 24 satellites









Can you find me now? Can you find me now? Can you find me now?

BY: Susan Ritter
6-14-02
Cascade High School
Clayton, IN

TIME: 6 class periods, 50 minutes long and ½ day field trip.

GRADE LEVEL: 9-12

PURPOSE:
For students to locate points using longitude and latitude coordinates and to give students hands-on experience with GPS.

STANDARDS:
ES.1.23 Identify locations of materials in/on the Earth's lithosphere.
- GPS will give precision locations on the Earth's surface.
- Mapping exercise with the terraserver will locate materials on the Earth's surface.

ES. 1.6 Discuss how manned and unmanned space vehicles can be used to increase our knowledge and understanding of the universe.
- Identifying how satellites are used in GPS and the applications of the technology.

ES.1.8 Discuss the role of sophisticated technology, such as telescopes, computers, space probes, and particle accelerators, in making computer simulations and mathematical models in order to form a scientific account of the universe.
- Identifying how satellites are used in GPS and the applications of the technology.

OBJECTIVES:
1. Students will locate their home by latitude and longitude coordinates.
2. Students will understand what GPS is and the basics behind how it works.
3. Students will accurately use GPS to locate specific coordinates.

MATERIALS:
Computer with internet access, hand-held GPS, paper, pen/pencil, transportation, tracking bugs purchased through geocaching, science journal.

PROCEDURE:

1. Hand out worksheet
2. Have students' complete steps 1-2. Follow with a group discussion and demonstration on how to use our hand-held GPS.
3. Create a geocaching map for around our school yard containing 5 sites.

4. Pass out geocaching map to complete outdoor assignment.
5. Have students' complete step 4.
6. Lead a class discussion about the web site and tracking bugs.
7. Show the pre-purchased tracking bugs. Include a group decision about what we should leave in each of the geocaches we will be visiting.
8. Take a field trip to locate each of the 5 locally hidden geocaches using hand-held GPS. Leaving the items predetermined in each box with a tracking bug attached.
9. Have students write a short entry in their science journals describing your field trip experience.
10. Lead a discussion for creating our own geocaches. Determine the hiding spot and its exact location with the GPS. Determine 5-8 items to include in the geocaches.
11. Have the technology department assist me with joining the geocaching web site and including a web page on our school site for all to be able to track our moving bugs.
12. Refer back to the internet site every 6 weeks.

ASSESSMENT:
10 points for completion
40 points for 1 page research paper
10 points for accuracy of school yard geocaching
10 points for participation in field trip
5 points for science journal entry

TOTAL 75 points

EXTENTIONS: leadership/social skills, mathematics for graphing and plotting, geography for mapping

RESOURCES:
Geocaching homepage http://www.geocaching.com
Aerial photographs http://terraserver.homeadvisor.msn.com
GPS information pages for the discussion and demonstrations
www.cees.IUPUI.edu/resources/ and www.esri.com

Can you find me now? Can you find me now? Can you find me now?

Name _____

1. Open the terra server web site listed in the resource section below. Type in your home town followed by the state.

(Example… Clayton, IN)
Click on aerial photograph. Use the scroll buttons to find your house. Once you find it, zoom in on it. Click on image info. Record the approximate latitude and longitude of your home here.

Lat._____
Long._____

(Day 1)

2. GPS, what is it and how do you use it? Using the internet, research global positioning systems to find out how it works and at least 15 applications for the system. Type a 200 word paper showing your results. ***(Day 1 and Day 2)***

3. Open the geocaching web site in the resource section below. Read to discover exactly what geocaching is all about. Then, obtain a geocaching coordinate map from your teacher to locate 5 sites in the school yard using the GPS. Record what your team found at each site below:

Site A_____

Site B_____

Site C_____

Site D_____

Site E_____

(Day 3)

4. Return to the geocaching web site given below. Locate 5 hidden geocaches near Cascade High School. On your own paper, record the coordinates for where each is hidden. Also, read about tracking bugs on this site. ***(Day 4)***

5. We will be taking a field trip to locate several of these geocaches sites. ***(Day 5)***

6. Write a 1 page entry in your science journal describing your geocaching experience. Be honest. Describe what you liked or didn't like. What was easy and/or difficult? Express your feelings. ***(Day 6)***

GRADING:
10 points for completion
40 points for 1 page research paper
10 points for accuracy of school yard geocaching
10 points for participation in field trip
5 points for science journal entry

TOTAL 75 points

RESOURCES:

- http://www.geocaching.com
- http://terraserver.homeadvisor.msn.com

CAN YOU GIVE ME DIRECTIONS TO THE GAME?

Tim Robison
Brown County Junior High School
Nashville, IN 47448

Topic: Using GIS to provide written and visual instructions to "away" athletic events

Estimated Time: three class sessions

Grade Level: Jr. High/Middle School

Purpose: To familiarize students with the use and capabilities of GIS.

National Geography Standards Addressed:

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.
Standard 3: How to analyze the spatial organization of people, places, and environments on Earth's surface.
Standard 4: The physical and human characteristics of places.
Standard 11: The patterns and networks of economic interdependence on Earth's surface.
Standard 12: The processes, patterns, and functions of human settlement.
Standard 18: How to apply geography to interpret the present and plan for the future.

Indiana Social Studies Standards addressed:
WG.1.3 Use locational technology (remote sensing, Global Positioning Systems [GPS] and Geographic Information Systems [GIS]) in order to establish spatial relationships.
WG.1.5 Ask geographic questions* and obtain answers from a variety of sources, such as books, atlases, and other written materials; statistical source material; fieldwork and interviews; remote sensing; word processing; and GIS. Reach conclusions and give oral, written, graphic, and cartographic expression to conclusions.
WG.2.5 Explain that the concept of "region" has been devised by people as a way of categorizing, interpreting, and ordering complex information about the earth.
WG.6.5 Understand the relationships between changing transportation technologies and increasing urbanization. (Economics; Individuals, Society, and Culture

Objectives: Upon completion of this activity students will . . .

1. Be able to GIS for research and mapping purposes.
2. Be familiar with major thoroughfares of their region.
3. Have heightened their ability to estimate travel times by incorporating distance, mode of travel and urban congestion into the formula.
4. Be familiar with the streams/rivers of their region and the watershed in which they live. (This element is added to meet the 2001 Geography theme of "rivers."

Materials Required:

- Fall sports schedule from the school
- Computers w/internet access and printer. (Alternately, if access to computer lab is not available the lesson can be done with the class using a TVator or projector hooked up to one unit.)
- ESRI software

Procedures:

1. Have a student verbally explain to the class how to get to a particular school (choose a difficult location). Ask how many students could confidently relay that information to their parents. Another approach would be to have the student write instructions and/or draw a map on the board.
2. Using the sports schedule, survey students to see how many know the best travel route to each of the away schools. Assuming that most won't know, explain the objectives of the lesson.
3. Once internet has been accessed students should take the following steps:
   A. Go to: http://terraserver.homeadvisor.msn.com/terra_usgsdoqs.asp
   B. Type in the name and state of the town in which the school is located.
   C. Select the "Topo" map, which will show the desired location on a map with transportation routes. If necessary zoom in/out using the "+/-" key.
   D. Note the major transportation route(s), which lead into that town.
   E. Change to the "Image" map, which will display an aerial photograph of the same area.
   F. Zoom in on the aerial photograph to confirm that you have found a school (large buildings and athletic fields become apparent). Students may not successfully locate a school the first time they zoom in, but by backing out and panning directions in conjunction with the zoom feature the school can be found.
   G. Return to the "Topo" view. It will now tell you the basic location of the school (in the town, NW of the town, etc . . .
   H. Now open the Arc Explorer software. (start, programs, ESRI, Arc Explorer 2.0)

I. Click on WWW in the upper left-hand corner.
J. Click on "Add Theme" which is a large, bold + in the first row of tools.
K. Under AEWeb click on USA Basemap.
L. Drag a box on South Central Indiana. This will zoom in on the region. Continue to drag boxes on the region until Nashville and the prospective opponent's town appear.
M. Minimize the map and open your word processor.
N. Type out the verbal instructions to the town.
O. Returning to the map, click on the "measure" tool (a ruler w/arrows pointing either direction). Measure the distance from the selected site to your own school. When doing this, do not measure a straight line!! In order to get an accurate assessment of miles you will travel you must follow the path of the road. Don't forget to add this info. to your written description.
P. Return to the map. Click back on the zoom tool. This time, drag a small box on the area in which you believe the school to be located.
Q. Note the names of the streets/drives needed to traverse to reach the school from the main thoroughfare. Return to the word Processor and type those instructions

4. In keeping with this year's Geography Action theme, "Rivers," you should now name any/all rivers and major tributaries you will cross on the journey to the school.
   A. Type in the following Internet address: http://www-atlas.usgs.gov/
   B. Navigate through the links in the following manner: Atlas Maps; National Atlas Online, Interactive Map Browser; Go Straight to Map Browser; Zoom to Indiana.
   C. Once the Indiana map appears, move to the upper right quadrant of the screen and scroll down to (and select) the following three categories and features: 1) Transportation—Roads; 2) Water—Streams and Waterbodies; 3) Reference—Cities and Towns.
   D. Move to the features below the map and select The Zoom in feature ("8x."). Next, click on the area of the map where you believe Nashville should be located.
   E. The map will redraw and should display the town you are traveling to, the roads you will travel and the streams they will cross. To name those streams click the identify feature and then click on that stream on the map.
5. Repeat steps 3 and 4 for each school on the schedule.
6. Students should be encouraged to check their transportation routes while in this atlas to ensure they have chosen the most direct route.

Adaptations/Extensions:

1. Students can be placed into small groups and/or can be assigned only a certain number of schools on the schedule.

2. Students can be made responsible for finding demographic information of the schools on the schedule.
   A. Go to the following web address:
   http://ideanet.doe.state.in.us/htmls/education.html
   B. Once there students should select "Data for one School or one School Corporation in Indiana" and then type in the name of the school for which they are seeking information.
   C. Students can then select from a number of criteria. For instance, if they are interested in the size of the school against which they'll be competing they can select enrolment.
   D. Students can use information they have retrieved to create tables, data bases, charts, etc . . .
3. At the USGS Atlas page (visited in 4A) teachers can find many attractive and useful information links that can be used to expand the lesson and address other Geography standards—habitat, land use, water discharge, etc...
4. The method of presentation is left up to the teacher. One suggestion is to have groups of students work collectively to draw a regional map displaying all of the opponent schools, towns and water bodies they will visit throughout the season.

Cultural Anthropology Study Using the Fundamentals of Geography and GPS

By: Scott Royer
Harrison High School
West Lafayette, IN 47906

Estimated Time: Two to Three Days-One in the field and one in the classroom

Grade Levels(s): High School-Anthropology Course (Unit on Culture)

Purpose:

1. Introduce students to the concept of GPS, how it works and use it in the field

2. Give students a chance to culturally examine our burial practices using modern technology

3. Develop a description of our culture based off of information derived from using GPS in addition to conventional observation

Background:

Religion and ritual are two aspects of cultural anthropology. How people care for their dead can tell a lot about their culture. One of our earliest sign of a belief in the supernatural is evident from burial sites of Neanderthals in Western Europe. In the U.S., one can see regional differences in how people are buried. Variance can be determined by beliefs, economic standing and time period when one was buried.

A small cemetery provides an opportunity to analyze our past and near present local culture. Looking at the patterns of a graveyard as a whole will allow us to analyze its origins. A detailed study will give us insight into ourselves and how we remember and the importance of a deceased person.

Using GPS, a follow-up analysis of a created map will provide a different perspective on how the cemetery was organized. By looking at various data from above, we will be able to make additional observations, analysis and conclusions regarding our culture that might not be possible from the ground.

Upon completion of this activity, students will be able to:

- explain how GPS systems work.
- use the basic functions of a GPS system.
- construct a map, using GPS.
- locate the cemetery's origin.

- explain how time is related to burial sites.
- correlate burial and ritual with culture.
- distinguish between types of burial stones.

Materials Required:

- Four hand-held GPS systems
- Notebooks
- Access to computers for downloads of GPS information and word processing
- A cemetery

Procedures:

- Give introduction to GPS including how it works and how it will be used in this activity
- Brainstorm the concept of cemetery to get a feel about their background
- Assign groups at random or allow them to select (no more than 4 per group)
- Proceed to the cemetery and allow students to begin plotting data
- Each student must operate the GPS unit
- Students will form groups of three to four people
- Each student will be responsible for one of the following functions:

    1. One to two students to operate the GPS unit, plotting each head stone with accompanying description

    2. Two other students to log in data that corresponds to the given points (This will also depend on the GPS unit being used)

    3. One student to note general observations

- Students will develop a criteria for each stones which will include:

    1. Stones categorized by name
    2. Stones categorized by condition
    3. Stones categorized by their elaborateness
    4. Stones categorized by religion/symbolism if notable
    5. Male/Female
    6. Date of death/age of deceased

- Enter data onto system-into mapping software if available-if not, use Excel to download
- Analyze data
- Write up results (each group will turn in one)
- Briefly discuss results to the class

Assessment:

Each group will turn in one written product. It can be in outline form or written out. It should include:

- The map they have developed using GPS
- The analysis of the various stones in relation to their location
- Identification of the point of origin of the cemetery and their reasoning
- A Criteria sheet indicating how stones were categorized
- An analysis of the inventoried stones (What kind of patterns do they note?)
- An analysis of our culture using burial as the example
- A hypothesis on why the cemetery is located where it is

Geography Standards Addressed:

INDIANA
Standard 1: The World in Spatial Terms
Students will use GPS to acquire and process information about people, places and environments.
- *WG.1.3* Use locational technology (remote sensing, Global Positioning Systems [GPS] and Geographic Information Systems [GIS]) in order to establish spatial relationships.
Standard 4: Human Systems
Students will identify and analyze the human activities that shape the Earth's surface, specifically rural and urban land use and cultural patterns.
- *WG.4.3* Hypothesize about the impact of push/pull factors on human migration in selected regions and about the changes in these factors over time. (Economics; Civics and Government; History, Individuals, Society, and Culture)
- *WG.4.8* Map the distribution patterns of the world's major religions, and identify architectural features associated with each. (History; Individuals, Society, and Culture)
- *WG.4.19* Demonstrate that change on Earth is constant, in both the physical and the cultural realm, and that the movement of populations, goods and ideas creates ever-altering spatial patterns. (Economic; Civics and Government; History; Individuals, Society, and Culture)

NATIONAL

Places and Regions - The physical and human characteristics of places
Human Systems -
- The patterns and networks of economic interdependence on the earths surface
- The process, patterns, and functions of human settlement
Environment and Society - How human actions modify the physical environment
Uses of Geography - How to apply geography to interpret the past

Extensions and Adaptations:

· Give data/maps to the county for their records if none is available
· Research records from the county and see if data obtained by GIS matches the county records
· Analyze and cross compare data with other student groups
· Explore restoration techniques-guest speaker from local organization
· Bound class results and give to school library to be used for future reference
· Plot any symbols and research their meanings
· Essay questions on future test referring to this study

Resources:

Ember, Carol R. and Melvin. Anthropology. Prentice Hall. New Jersey, 1999.
http://www.savinggraves.com/index.htm 6/13/02

Cultural Anthropology Rubric:

Group _____

Did students successfully plot and map out the graveyard using the GPS?	20 _____
Did students come up with a hypothesis explaining the origins?	10 _____
Did students come up with a hypothesis explaining the terrain as it relates to the location of the grave yard?	10 _____
Did students explain how time is related to the types of stones?	10 _____
Did students differentiate between stones and discuss how and why they varied?	10 _____
Did all students use the GPS unit?	5 _____
Did students make good use of time?	5 _____
Did students make a brief presentation of hypotheses to class?	10 _____
Total:	80 _____

Discovering the Past Using the Future: Remote Sensing and the Lost City of Ubar

By: Joyce Thompson
(adapted from lesson plan by Christopher Freeman, Mississippi Gulf Coast Community College)

Classroom sessions/estimated time: Three Class Periods, 50 minutes each

Grade Level(s): 9-12

Purpose: To explore the impact of remote sensing as it relates to the discovery of the Lost City of Arabia

Geography Standards addressed:

National Geography Standards addressed:
Essential Element 1: the World in Spatial Terms
Standard 1: How to use maps and other geographic representations, tools and technologies to acquire, process, and report information from a special perspective
Essential Element 6: the Uses of Geography
Standard 17: How to apply geography to interpret the past

Indiana Geography Standards addressed:
Standard 1: The World in Spatial Terms
Students will use maps, globes, atlases, and grid-reference technologies, such as remote sensing, GIS, and GPS to acquire and process information about people, places, and environments.
Standard 2: Places and Regions
Students will acquire a framework for thinking geographically, including the location and unique characteristics of places, They will identify the physical and human characteristics of place.
Standard 6: The Uses of Geography
Students will understand the influence of physical and human geographic factors on the evolution of significant historic events and movements. They will apply the geographic viewpoint to local, regional, and world policies and problems.

Objectives:

- Students will identify and locate specific locations on the Arabian Peninsula, the Rub al Khali Desert, and present day Oman.
- Students will identify other names for the lost city of Arabia as Ubar, the Atlantis of the Sands, Iram, and the city of towers.
- Students will identify the impact of remote sensing on the discovery of the lost city of Arabia
- Students will identify specific remote sensing tools utilized.
- Students will identify and explain the collaboration between remote sensing scientists and archeologists as the basis for this discovery.

Background:
The lost city of Arabia, also known as Ubar, the Atlantis of the Sands, Iram, and the city of towers, is located on the Arabian Peninsula (now known as Oman). The lost city of Arabia became rich by trading in frankincense, which was used as a fragrance, for medical purposes, and for embalming. Prepared from the sap or gum of trees grown in nearby regions, this sweet-smelling incense was as valuable as gold at the time. Legend says that Allah destroyed the city and blotted out the roads leading to it because of the wickedness that flourished there. Lost for more than a thousand years, the city mentioned in the Holy Quran was thought to be a legend until the early 1990's. People were astonished to read headlines declaring that a filmmaker and amateur archeologists, Nicholas Clapp, together with NASA scientist Dr. Ronald Blom, and a team of explorers had actually discovered this city of mysteries.

This lesson plan focuses on the role of remote sensing and the collaboration between archaeologists and NASA scientists in the discovery.

Materials Required:

- Computer with internet access
- One bag of sand
- A tiny piece of metal to put in the sand
- Bar magnets
- Video: Lost City of Arabia, optional (available from NOVA)
- Three Web Site Study Guides (provided)
- Map Exercise (provided)
- Outline map of Arabian Peninsula

Procedures:

Day 1
Introduction: Since most students will associate The Lost City of Arabia with the magic of Aladdin and flying carpets, allow a day for them to research background information. Provide students with the following websites for their investigations and a corresponding study guide for them to complete for each web site.
Student Worksheet #1- http://www.islam101.com/archeology/ubar.html
Student Worksheet # 2- http://www.pbs.org/wgbh/nova/ubar/tools/index.html
Student Worksheet #3- http://www.pbs.org/wgbh/nova/ubar/tools/tools2.html

Day 2
Some students may need additional time to complete the research from the preceding day. Allow time for class discussion and to discuss any problems they are having finding the material. After the students have some background information on the lost city of Arabia (both through research and teacher presentation), ask the question "How was this city, which was lost for thousands of years, discovered?"

To demonstrate the difficulty in locating the lost city, pour a bag of sand containing one pellet of metal into an oblong container. Explain to the students that there is a small pellet of metal (metal shavings will work also) located within the sand. Allow several students to try to find the metal. (This will be a daunting task!) Keep the sand in the classroom for the students to continue exploring. It will also be used on the last day of the lesson.

Relate the activity to the great difficulty archeologists faced in trying to discover a legendary city in miles and miles of sand dunes, which reached 1000 feet in height in some areas. Open website http://courses.smsu.edu/ejm893f/creative/glg110/deserts-wind.html#backstardune. Click on the photographs to enlarge them.

After discussing the lack of landmarks within the photographs, probe students regarding shifting of locations due to weather conditions. Lead them to discover that the shifting of the sand makes it nearly impossible to pinpoint specific locations for later use.

Activity : (This is a computer simulation that informs about tools needed to find out where they are.)

This could be done by individual students assigned to computers or does as a class using a projector system. Open website http://www.pbs.org/wgbh/nova/ubar/hotscienceubar/index.html. This website asks students to imagine that they are archeologists looking for the lost city of Arabia. Their first task is to locate the Rub al Khali Desert by clicking on its location on a world map. A wrong click identifies the desert that they have found and also gives directions (Try heading southwest.) for locating the Rub al Khali. When the students click on the correct location, they are given factual information on the Arabian Desert and presented with the task of selecting items they will need to help them figure out where they are. As students select three of the six items (teddy bear, map, compass, fire, whistle, and global positioning system receiver) an explanation on the items usefulness is given.

Day 3

Conclusion: Class discussion of focus question "What role did remote sensing play in the discovery of the lost city of Arabia?". Emphasize the collaboration between archeologists and scientists who utilize remote sensing as the major reason the lost city of Arabia was located. (Findings that should be identified include locating distinct tracks through the desert, which were identified as old caravan routes, the imagery allowed the archeologists to look at a large area in a single scene further allowing them to analyze vast portions of the desert at one time, using image processing techniques to highlight important features and data from different sources allowed them to exclude large regions of the desert and narrow the search to the most promising sites. Types of remote sensing identified should include radar imaging, Landsat imagery, and Thematic Mapper. To

demonstrate the usefulness of remote sensing, provide students with a bar magnet and ask them to find the pellet of metal (or metal shavings) in the sand. This may take a few minutes but is a much, more efficient way of locating the metal. Relate this to remote sensing's ability to help archeologist become more efficient in their quest to uncover the past.

Assessment: (100 points possible)

1. Completed Study Guides (10 points each= 30 points)
2. Completed Map (20 points)
3. Written response to the open-ended focus question: "What role did remote sensing play in the discovery of the lost city of Arabia?" (50 points)

Extensions: If time permits, view the Nova video Lost City of Arabia.

Remote Sensing and the Lost City of Ubar
Student Worksheet # 1

Investigate the following website: http://www.islam101.com/archeology/ubar.html and complete the following questions:

1. List three names used for the lost city of Ubar.

a.

b.

c.

2. According to researchers what might have been the early purpose of this city's location?

3. Describe what the researchers found in 1992.

4. Was this the first effort to find Ubar? Explain.

Remote Sensing and the Lost City of Ubar
Student Worksheet # 2

Investigate the following website: www.pbs.org/wgbh/nova/ubar/tools/index.html and complete the following questions.

1. List and describe two types of ground devices

2. Why can't the human eye detect differences in rocks and terrain?

3. Name and describe the capability of the first multispectral imaging satellite in 1972.

4. Name and describe the imaging system launched in 1981.

5. What information was revealed about the Sahara Desert as a result of the SIR-A technology?

Remote Sensing and the Lost City of Ubar
Student Worksheet # 3

Investigate the following website:
http://www.pbs.org/wgbh/nova/ubar/tools/tools2.html and complete the following questions:

1. How far can the SIR-A technology penetrate?

2. What is the best type of material for this radar to penetrate?

3. How many Landsat satellites are now orbiting the earth?

4. What is a Thematic Mapper?

5. What was noticeable about the surface material of the trail leading to Ubar?

6. What is the difference in SIR-A and SIR-C which was used in 1994?

7. What two other historical sites did researchers gain more knowledge of through radar imaging?

8. What other components were needed to complete archeological research such as identifying the location of Ubar?

Remote Sensing and the Lost City of Ubar
Map Exercise

Using the map on the website www.pbs.org/wgbh/nova/ubar/map/index.html locate the following places on the blank map provided.

Countries	Bodies of Water	Cities
Yemen	Persian Gulf	Riyadh
Oman	Arabian Sea	Mecca
United Arab Emirates	Indian Ocean	Sanaa
Kuwait	Gulf of Aden	Muscat
Qatar	Red Sea	
Jordan		
Iraq		

Also locate the region known as the Empty Quarter and the lost city, Ubar

Donde en el mundo estas?
(Where in the world are you?)

By: Susan E. Marquez
June 13, 2002
North White HS
Monon IN

Classroom sessions/estimated time: 3 class periods of 52 minutes

Purpose: Students will learn to give & follow directions given in Spanish, using oral, written and graphics.

Geography Standards Addressed:

- Standard 1 (WG H.S.): Students will use maps, globes, atlases, and … remote sensing, GIS, and GPS to acquire and process information about … places.
  WG.1.3
  WG.1.5
- Standard 2: Students will acquire a framework for thinking geographically, including the location and unique characteristics of places.
- Standard 4: Students will identify and analyze the human activities that shape the Earth's surface, including … rural and urban land use.
  WG.4.9 Map the language distribution.

Spanish Level II. Standards Addressed:

- Standard 1: Students engage in conversations, provide & obtain information.
- Standard 2: Students understand & interpret written & spoken language on a variety of topics.
- Standard 5:
  2.5.4 Identify simple themes …of the culture evidenced through geography…
- Standard 6: Students reinforce & further their knowledge of other disciplines through the foreign language.

Objectives: Upon completion of this lesson, students will be able to:

1. Give directions in Spanish
2. Identify 10 areas in Spanish
3. Write directions from points from A to B
4. Understand & follow directions by other students
5. Download a map from MapQuest of their neighborhood
6. Make a Power Point Presentation including a map, labeled areas & directions in Spanish

Background: Students have already learned vocabulary for N/S/E/W; R/L; forward, back, turn, blocks, miles, streets, highways, buildings.

Materials Required:

- Juntos Dos textbook
- Example of work I want done (Attachment 1 Power Point and at http://iupui.edu/~geni/lsort/pp_sm.ppt)
- Computer lab with Internet access, Microsoft word and Power Point
- MapQuest.com website for downloading maps
- Spanish/English language dictionaries
- Vocabulary list in Spanish of related words for buildings, directions
- List of "How to" do: Power Point, saving maps from MapQuest
- Rubric of how activity will be graded
- Checklist of "Your finished project will have…"
- MultiMedia Projector

Procedures:

First Day

1) Students will go to the computer lab to download a map. (Teaching Tip: Pair students if possible with two from same neighborhood and also have 1 technology knowledgeable and one stronger in Spanish language.)
2) Students will copy & paste map of their Neighborhood into the Power Point.
3) Students will add "aerial view" from MapQuest.
4) Students will identify friends' homes, points of interest (5-10 points) and add shapes of those points in their Power PP.
5) Students will color & identify all of their points.
6) Students will write directions from a point A to a point B of their choosing from their map.

Second Day

7) Students will finish Power Point presentations, practice pronunciation, & get ready to present their PPP.
8) Students will present in pairs their PPP in this way: one student will read the directions in Spanish while giving the PPP and the other student, using the pointer pen option will show the route on the screen using a computer connected to a MultiMedia Projector.

Third day

9) The students that followed directions the previous day will now read the directions, choosing a random student from a different pair and give the directions.

Assessment:

Students will be graded on
a) participation, b) correctness of Spanish used, c) correct pronunciation, d) following of instructions in drawing what another student says, e) written test with similar directions written out: students will draw in a route and also write Spanish instructions for a pre-written map, f) Power Point presentation.

(Teaching Tips: see the following website for detailed grading for PP & other rubrics: http://www.uni.edu/profdev/rubrics/pptrubric.html, http://www.school.discovery.com to Kathy Schrock, to assessment & rubrics, to rubric generator.)

Adaptations/Extensions: German teachers would replace the vocabulary & directions in German & so forth. Geography teachers would be able to use it in English for its mapping, local environment and technology focuses. For Bonus: students owning GPS devices could go to some of these sites, "mark" the sites (which would give them exact coordinates), write down the coordinates & bring in for extra credit. After school several students could walk to one of the nearby sites, "marking" sites on a portable GPS device and then follow the route back.

Resources:
The following websites:
http://www.mapquest.com
http://education.ssc.nasa.gov/ltp/LessonPlans/Grades9-12.htm
http://gislounge.com/ll/k12education.shtml
http://earth.jsc.nasa.gov/
http://archive.globe.gov/sda-bin/wt/ghp/tg97en+U+P(GPS/LearningActivities)
http://visibleearth.nasa.gov/
http://missiongeography.org/

More websites but in Spanish:
Online Spanish lessons:
http://www.studyspanish.com/
http://www.june29.com/Spanish/
Free translations from Sp-Eng/Eng-Sp/more
http://babelfish.altavista.com/
NASA in Spanish
http://www.nasa.gov/hqpao/espanol.html

Las areas de Blanco Norte

Como llegar de las casas a la escuela y a otros lugares

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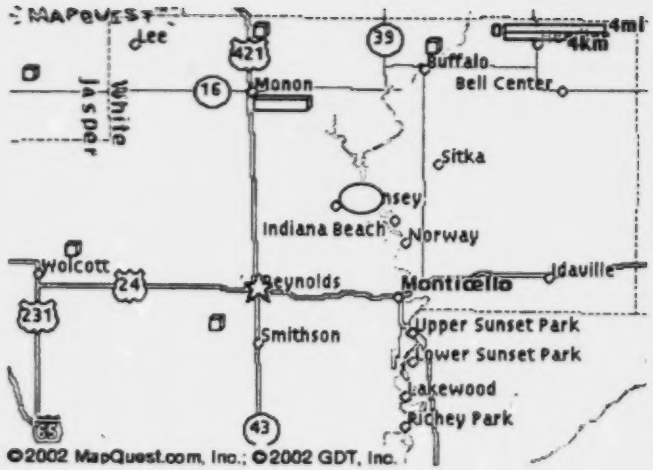
Todo el area


MAPQUEST
Lee
421
39
0
4mi
4km
Buffalo
Bell Center
16
Monon
White
Jasper
Sitka
Indiana Beach
Norway
Wolcott
24
Reynolds
Monticello
Idaville
231
Smithson
Upper Sunset Park
Lower Sunset Park
Lakewood
Richey Park
65
43
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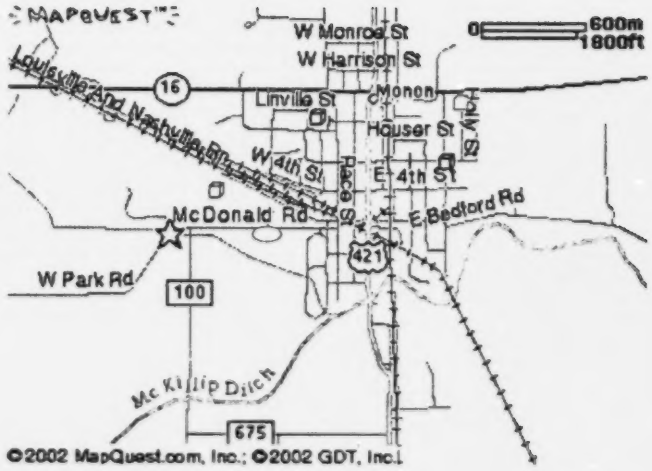
Las direcciones

- Empieza en la ciudad de Reynolds
- Maneja al norte en la carretera 421
- Llega a la carretera 16
- Da vuelta al este en la carretera 16
- Camina hacia el este hasta llegar a la escuela en aproximadamente 20 metros
- Entra en la escuela

El area de Monon



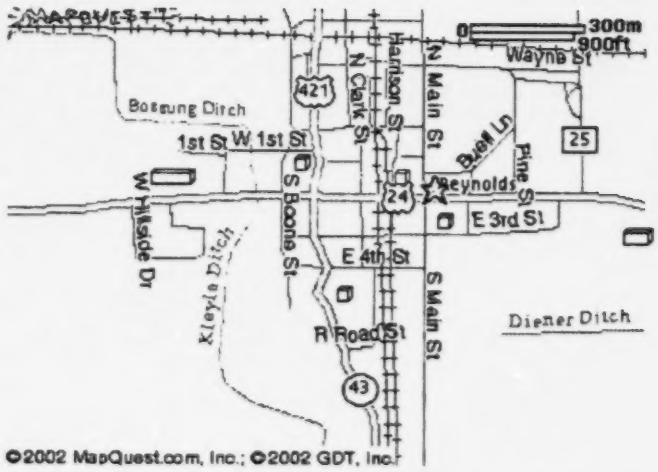
Monon

- La casa roja es de Jorge.
- La casa amarilla es de la Sra. Marquez.
- La casa azul es de la Srta. McDonald.
- El area verde es el parque de Monon.
- La casa de color violeta es de Dolores.

Las direcciones

- Empieza en la casa de Jorge
- Sigue adelante al norte
- Da vuelta a la izquierda en la carretera 16
- Sigue derecho
- Cruza la carretera 421
- Sigue derecho hasta la calle de Race
- Da vuelta a la izquierda
- Camina una cuadra
- Dobla a la derecha (oeste)
- Camina dos cuadras
- Entra en la casa color de rosa numero 335

El pueblito de Reynolds



Reynolds

La escuela primaria es azul bajita.

El restaurante de los EEUU es azul brillante.

El centro de reciclar es amarillo.

La gasolinera es verde.

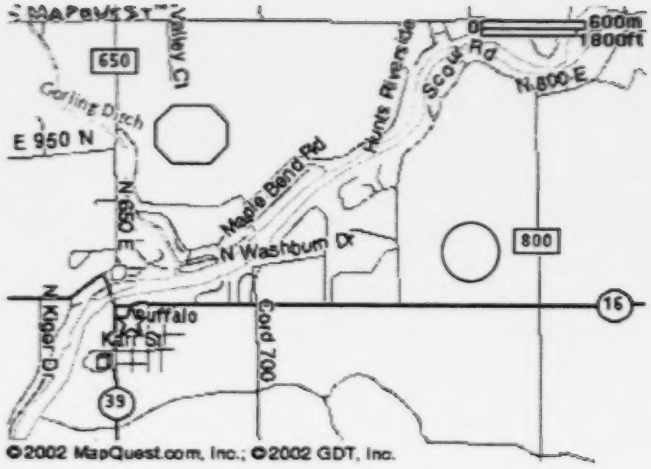
La iglesia metodista es roja.

La iglesia catolica es morada.

Maneja tu coche desde el centro de reciclar hasta la escuela primaria.

- Entra en tu coche
- Maneja al norte hasta la carretera 421
- Dobla al oeste (poniente)
- Sigue derecho
- Cruza la carretera 421
- Busca la escuela del lado derecho
- (Es un edificio de ladrillos grande y café.)

Bufalo


650
Valley Ct
Corling Ditch
E 950 N
N 650 E
Maple Bend Rd
Hunts Riverside
Scout Rd
N 800 E
800
N Washburn Dr
16
Buffalo
Kent St
N Kiger Dr
Cord 700
39
0
600m
1800ft
©2002 MapQuest.com, Inc.; ©2002 GDT, Inc.

Los lugares de interes en Bufalo

- El campamento de los BOY SCOUTS es verde.
- El restaurante de los Dotson es rojo.
- La escuela primaria es azul.
- Un campo con bufalos verdaderos es amarillo.

Como llegar del lugar de los Boy Scouts hasta el campo de los bufalos.

- Pasa al sur a la carretera estatal de 16
- Da vuelta a la derecha en esta calle
- Sigue derecho hasta llegar a una “T”
- Pasa por el puente
- Dobla a la derecha cerca del restaurante
- Da vuelta en la calle del condado # 650 N
- Cruza un arroyo
- Mira a la derecha para ver los animales

List of How To . . .

How to go to MapQuest & get correct maps:

1) Type in http://www.mapquest.com
2) Type in name of city, state, zip code
3) Click "map it"
4) Realign map by pressing "zoom in," "recenter," until it is as you like it.

How to copy & paste map into the PPP:

5) right click on map
6) go to "save picture as"
7) save to desktop (give it a name you'll recognize)
8) minimize that window
9) right click on image file on desktop (look for the name)
10) select copy
11) minimize that window & bring back up the PPP window
12) right click & paste (under "edit" feature)

How to get "houses," "parks," etc. onto the map:

13) view toolbars→ drawing
14) click "Autoshapes" & drag to "Basic shapes," then over to little box, little circle or some other shape you want
15) left click & drag over to drop somewhere on the map

How to paint the basic shapes:

16) left click on "house"
17) go to little paint bucket & drag to a color
18) click
19) save to your student file

How to add text:

20) view—toolbar
21) select square with lines and an "A"
22) add dialogue box (position looks like 4 closed boxes with slanting lines bordering the rectangle)
23) add text
24) left click outside of dialogue box
25) save

How a student gets a pencil to draw the route he is hearing (during PPP):

1) While viewing the "slide show," right click on mouse
2) Choose "pointer options" & drag right to "pen"
3) Click
4) To go on, right click & drag to "next"
5) Continue until the last slide
6) To end, right click & drag to "end show"

(Teaching Tips: Students will come up to the front of the computer lab, log on into the computer that is attached to the MultiMedia Projector that will be seen on the large screen in front of all the students. The pairs will then do the following: one student will read the directions in Spanish and the partner will draw the route as the partner is saying it. Later, students will be picked at random to follow a presentation with the "pen" for someone else's map.)

(Teaching Tips: Teacher maps up two new maps for the text: one the teacher will "say" while all students draw the route on a map; the second part will have a map with buildings already written in. Below students will write in the directions in Spanish of how to get from point A to point B.)

Student Checklist

Your finished project will have:

- An aerial map w. view of your neighborhood
- A MapQuest map of your neighborhood
- A list in Spanish of 5-10 buildings or points of interest in your neighborhood
- A set of directions in Spanish from 1 point to another including at least 5 "tu" commands
- A 4-page Power Point presentation of the above

Eagle Creek Park (A Hike)

By: Name: Will Sibley
Ben Davis Jr. High, Indianapolis, IN
June 2002

Classroom sessions/estimated time: 2 blocks or 3-4 regular class periods

Grade Level(s): 8-9

Geography Standards Addressed:

1: The World in Spatial Terms – Standard 1 - How to Use Maps and Other Geographic Representations, Tools, and Technologies to Acquire, Process, and Report Information From a Spatial Perspective
1: The World in Spatial Terms Standard 3 - How to Analyze the Spatial Organization of People, Places, and Environments on Earth's Surface
2: Places and Regions – Standard 4 - The Physical and Human Characteristics of Places
4: Human Systems – Standard 9 - The Characteristics, Distribution, and Migration of Human Population on Earth's Surface
5: Environment and Society – Standard 14 - How Human Actions Modify the Physical Environment

Indiana Social Studies Academic Standards Addressed:
WG.1.1 – Earth's grid system, latitude and longitude
WG.1.3 – use GIS and GPS to establish special relationships
WG.1.4 – Explain that maps contain special elements of point, line, area and volume.
WG .1.5 – use a variety of sources to answer geographic questions.

Objectives:

Upon completion of this activity students will have learned how to:

1. Plot out a hiking course using aerial photos and a topographic overlay.
2. Find the latitude and longitude of absolute locations.
3. Measure the total distance of a hiked area.
4. Figure the area of the ground walked using Heron's Formula.

Background: As an activity to help students understand what maps mean, use the What Do Maps Show activity on the USGS home page.
http://interactive2.usgs.gov/learningweb/teachers/mapsshow.htm

Materials required & Resources:

1. Attachments:

   a. Topographical map of Eagle Creek road area. – To site plan a hike. Attachment 1 and at http://www.iupui.edu/~geni/lsort/topo.jpg

   b. Aerial map of same area. – For use in seeing elevation change. Attachment 2 and at http://www.iupui.edu/~geni/lsort/aerial.jpg

   c. Heron's Formula activity. (Attachment 3)

2. Instructions on measuring student's steps. – To measure their hike and figure Heron's Formula.

3. Computer to see L & L of Eagle Creek Area.

4. Student Log for Students to fill in.

5. Hard copy or computer version of mission geography lesson.

Procedures: This activity can be done in pairs or individually. Tasks should be done in order, students can not move ahead.

1. Use the attached Aerial photo and have each student look at the paths and pick a hiking route with three points on it (a triangle). It may be easiest to make an overhead to review with and make some copies for the students. Have students check that off on their student log.
2. Have students complete the How Can We Compare Maps With Images From Space. This is a k-4 lesson, but you can just use parts of it (or all of it) to help illustrate how these images are used. http://missiongeography.org
3. After picking their route, use the topo map of the same area and have the students look at and list all the changes in elevation. Have the kids graph out the route. Have students fill that out in their student log.
4. Using a computer, have the students approximate the latitude and longitude of the three points that they picked. http://terraserver.homeadvisor.msn.com Have students fill that in on their student log.
   Use the following formula to have the kids figure out how long their step is: Use a tape measurer, pull out a good distance and place on ground. Have each student walk up to it and take three steps starting at the front of tape measurer. Do this three times and average it and than divide by three.

Total 1 + total 2 + total 3 = grand total / 3 = average of 3 steps / 3 = length of step

5. Have students fill out that task of their student log.
6. Time to hit the road! Go to Eagle Creek and have students walk their routes. Have them count the steps in their routes. You will need to use those 3 points that they picked in task 1. Students need totals from point 1 to point 2, from point 2 to point 3, and from point 3 back to point 1. Then have them add up all totals for a grand total. Have them fill out task 6 of their student log.
7. Have them fill out task 7.

Assessment: The scale can be adjusted to fit any scale that you use.

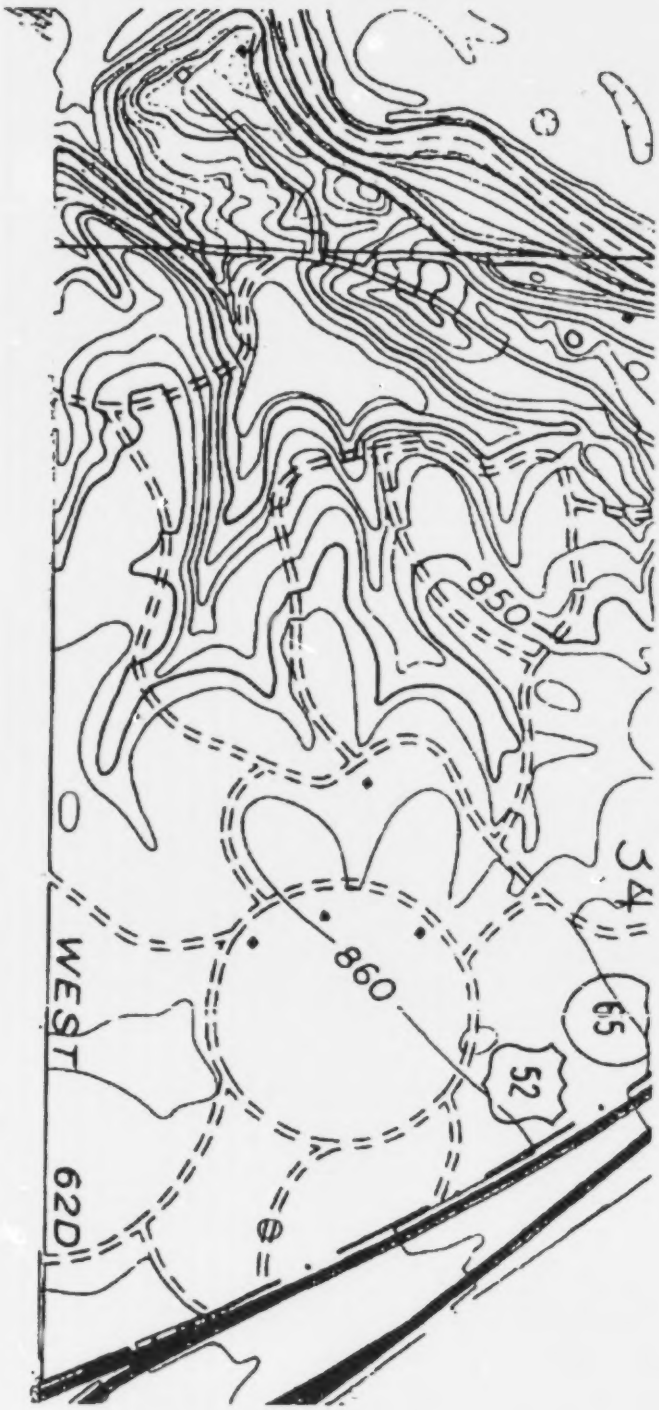
Performance Assessment

4 exemplary	Has met all expectations completely. Has completed the extension option.
3 satisfactory	Has met all expectations completely (tasks 1-7) and correctly.
2 needs working	Has met 5 of the 7 expectations (tasks) completely and needs work on 2 of the expectations (tasks).
1 unsatisfactory	Has not met the minimum requirement of at least 5 of the 7 expectations (tasks). The assignment either needs to have continued work done (late) or needs to be redone.

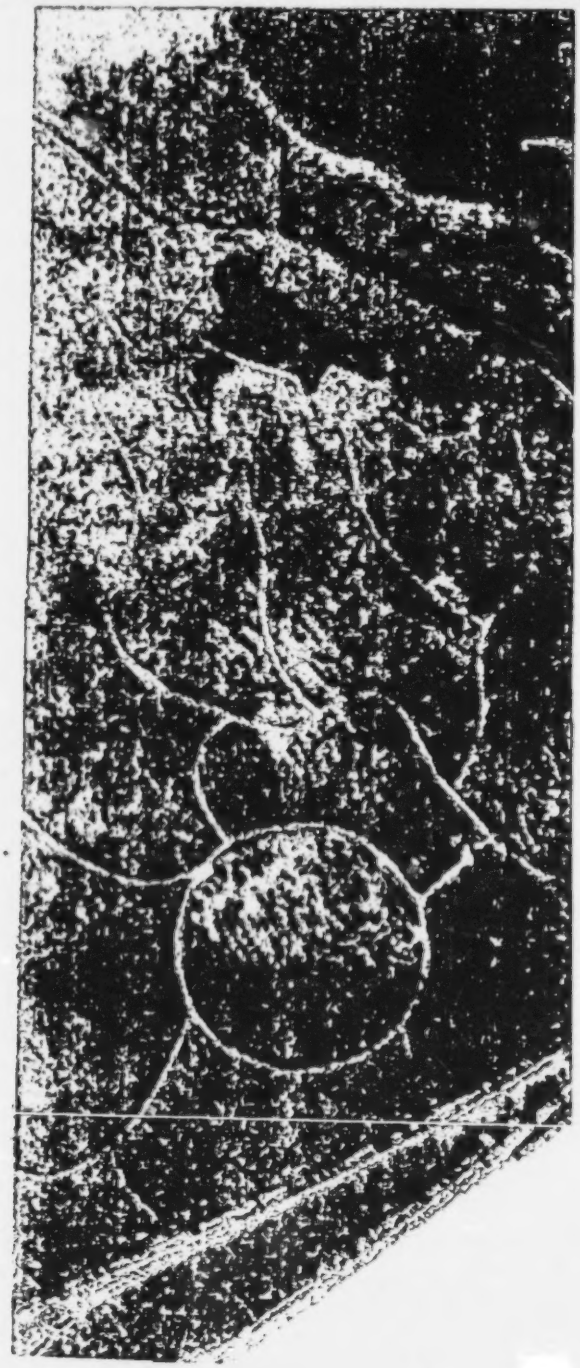
Adaptations/Extensions:

Have the student complete the Heron's Formula activity.

Attachment 1 - Topographical Map of Eagle Creek



Attachment 2 – Aerial Map of Eagle Creek



Attachment 3 – Heron's Formula

HERON'S FORMULA

HOW TO FIND THE DISTANCE YOU WALKED AND FIND THE AREA OF THE GROUND THAT YOU COVERED

MATERIALS:

EU log/journal
Calculator
Your topo map with the trail you walked on it

You are to calculate the distance you walked on your trail today. This is called the **PERIMETER** of the triangle in which you travelled. This is found by **ADDING** the length of the three sides of your path.

If the sides of your triangle are 6.5 hm, 4.2 hm, and 8.4 hm, then you have
walked 6.5 + 4.2 + 8.4 = 19.1 hm. This is 1910 meters.

Calculate the distance you walked today by finding the perimeter. Then change you answer to meters. ***Show all of your calculations and answers in your EU log/journal.***

To find the **AREA** of the triangle you covered by walking around the perimeter, you can use **HERON'S FORMULA:**

$$A = \sqrt{s(s-a)(s-b)(s-c)}$$

The letter **s** means the **SEMIPERIMETER** of the triangle you walked. So take your perimeter answer (the one in hectometers) and divide it by 2.

The letters a, b, and c, stand for each of the sides of your triangle, in hectometers please.

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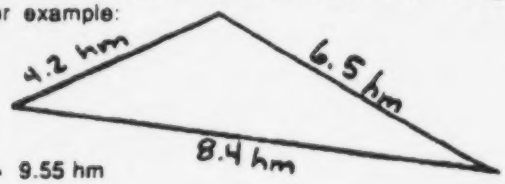
Now, calculate the area of the triangle you walked by plugging in all of the appropriate numbers in all of the right places and calculating. **Show all of your work in your journal, and put your final answer in square meters.**

Ohhhh..... $\sqrt{}$ means **SQUARE ROOT** (look on your calculator).

Here is an example of Heron's Formula used with the same triangle above in the perimeter example:



$s = \frac{(6.5 + 8.4 + 4.2)}{2} = 9.55$ hm

$A = \sqrt{s(s-a)(s-b)(s-c)}$

$A = \sqrt{9.55(9.55-6.5)(9.55-8.4)(9.55-4.2)}$

$A = \sqrt{9.55(3.05)(1.15)(5.35)}$

$A = \sqrt{179.20694}$

A = 13.386819 square hectometers

Rounded to the nearest thousandth is **13.387 square hectometers.**

This answer in square meters is **1338.7 square meters.**

THERE IS THE AREA OF THE TRIANGLE YOU COVERED!

When writing everything in your journal/log, be sure to show all of your work and label work well, or else you will be asked to do all of this over again!

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Student Log

Name _____

Task 1 - Look at the aerial photo of the area, pick a route with three points (a triangle).

Check box after you have picked your route, go on to task 2.	

Task 2 -

Check box after you have completed the How Can We Compare Maps and Images From Space activity. Go on to task 3.	

Task 3 -

Task 4 -

	Latitude	Longitude
POINT 1		
POINT 2		
POINT 3		

Task 5 -

Total 1		Total 2		Total 3		Grand Total				Average of 3 Steps				Length of Step
	+		+		=		/	3	=		/	3	=	

Task 6 -

Point 1 to Point 2		Point 2 to Point 3		Point 3 to Point 1		Total Feet Walked
	+		+		=	

Task 7 - The Sum of all Hikes

I walked _____ feet.

My hike took place between latitudes _____ and _____.

The lowest point on my hike was _____ feet and the highest point was

_____ feet. Making the difference _____ feet.

Go West My Class:
Geography Education On The Road Again
(as in the information superhighway)

A lesson on the impact of Geography on where we choose to live and introduction to applications of GIS

GRADE LEVEL: 9-12

CLASS: World Regional Geography (elective)

National Standards

Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.
Standard 2: How to use mental maps to organize information about people places, and environments in a spatial context.
Standard 3: How to analyze the spatial organization of people, places, and environments on Earth's surface.
Standard 6: How culture and experience influence people's perceptions of places and regions.
Standard 8: The characteristics and spatial distribution of ecosystems on Earth's surface.
Standard 9: The characteristics, distribution, and migration of human populations on Earth's surface.
Standard 11: The patterns and networks of economic interdependence on Earth's surface. Standard 12: The processes, patterns, and functions of human settlement.
Standard 18: How to apply geography to interpret the present and plan for the future.

Illinois State Standards
17.A.4a Use mental maps of physical features to answer complex geographic questions (e.g., how physical features have deterred or enabled migration).
17.A.4b Use maps and other geographic instruments and technologies to analyze spatial patterns and distributions on earth.

Purpose: Introduce students to GIS and its possible use in our daily lives and also see how geography affects our choices in where we choose to live

OBJECTIVE: By the end of the project, students will be able to

1. Find data that can be mapped on the Factfinder Web page

2. Analyze the data from the web site
3. State recommendations on whether a person should live in Illinois or not based on their preferences.

TIME FRAME: 30 minutes a day for 4 days and 45 minutes on a 5th and final day for a 90 minute block schedule and condense as you wish for a 50-55 minute schedule.

MATERIALS: Internet computer

- Pen and pencil
- Project Handout
- Printer with lots of paper
- Materials to help students make a visual (markers, paper, etc.)

Day 1

Step 1: Present a simple powerpoint presentation on what GIS is about, and what its applications can do for us towards the end of class.

Day 2

Step 1: To begin the project ask students if they could live anywhere in the U.S. where would it be? Write down their responses on the board. Then ask how do they know that the place they mentioned is the best place for them to live? If the discussion dies, or no one hits a response that involves research, bring up the point that we don't know until we have written down our likes and dislikes and compared them to the geography of the place we want to live. This is where GIS can help us discover the best places to live, work, vacation, or go to college or other schooling. Without GIS we probably would be shooting in the dark and hoping that we hit the target we desire.

Step 2: Hand out project description with the client's characteristics.

Step 3: After discussing the project goals with the students and answering questions, have the students in each group pick a state out of a hat and write down the name of the state on their project packet.

Step 4: Allow the students time to research the topography of the States and the Climates using in class atlases or go to http://nationalatlas.gov/natlas/natlasstart.asp and look up the information there.

Day 3

Step 1: Go to a computer lab and get on the internet and type in http://factfinder.census.gov/servlet/BasicFactsServlet

- Click on "Maps" in the upper right of the screen and wait a moment
- Click on "age" by "show me" and change it to "Children (1990)"
- By the "for" category click and make sure the box says "United States by State"
- Then click on "Go" and wait for the map to appear.
- If you want to save the map for your report, click and hold down the mouse and drag the arrow over the map until the map is highlighted, and then let go. Then go up to "edit" and click on copy. Then open up a word document and paste it in it.
- Make notations on which are the same and which are different and your choice for your client.
- Repeat the above steps for the following topics in the "for" box
i. "Education (1990)"
ii. "Income (1990)"
iii. "Urban/Rural (1990)"

Day 4

Step 1: Allow them time to type their report for their client justifying their choice for their residency and Create a visual conveying and supporting their choice for their client all with the aid of a writing and visual rubric.

Day 5
Step 1 Have students present their findings from their research and their visual aids and they will turn in paper and visual

Name _____ Western State _____

Go West My Class
Or
Geography Education On The Road Again (as in the information superhighway)

A lesson on the impact of Geography on where we choose to live

Background: You and your partner are employed by the Illinois housing placement agency (IHPA). Illinois residents contact this agency to find out if Illinois is the best place to live or is there a state out west that better suits their interests and wants.

Product: By the end of this exercise you and your partner will create:

1. A typed report prepared especially for your client that describes the differences and similarities between the two states and which state you recommend to your client and why. (2 – 3 pages typed double spaced, it should be longer with graphics)
2. (A) Visual(s) that describes the differences between the two states
3. A presentation to the class on who your client was and what your recommendation is and why.

Step 1: You and your partner must pick a client from a hat. The choices are:

1. Gloria Garden – wants to live on flat level land so she will have no problems planning her garden. She wants to live in a climate that rains a lot, She wants to find a job teaching children, She hopes to go on for her Masters, she likes the country life, and money doesn't matter to her as long as she is doing what she loves.
2. Fred Fisherman – wants to live in a states with lots of lakes, and the climate has to be wet to keep those lake levels up, he dislikes children, he never went to college, he hates the city life, and he wants to open up a bait shop and live off the profits.
3. Steve Skier – needs to live in a hilly/mountainous terrain, he would love the weather to be cold all year, he plans on teaching children how to ski, he has a bachelor's degree, he loves being around people, and he hopes to open his own ski resort and make as much money as possible so he can ski more and work less.
4. Billy Boatman – loves all sorts of boating, canoeing and whitewater rafting, he loves water and loves the rain, he doesn't like to be around children, he wishes to become a Professor of boating, he doesn't like being around people, and he hopes to make $30,000 or more during the first year.

5. Charlie Cycle – needs to train for the Tour de France so he needs to bike on flat, hilly, and mountainous terrain, he needs to train from January to June so the weather needs to cooperate during that time period, he loves children, he never went to college, he needs to train away from populated areas, and he needs friends and corporations to donate money to help him train for the big race.

Step 2: You and your partner will now pick a state west of Illinois out of a hat. This is the state that you will compare to Illinois. You will compare the following features:

1. Topography – what landforms and bodies of water do the states have in common and what is different, and which would best suit the needs of your client?
2. Climate – Do the states have any similar climates, if so what are they, what climates are different, and which state would best suit the needs of your client?
3. Number of Children – what is the difference between the two states in their child population s and which state would better suit your client?
4. Education of population – What is the percentage of the state population with a Bachelor's degree or higher and which state would better suit your client?
5. Rural/Urban population – What percentage of the population lives in an urban area and which state would best suit your client
6. Income – What is the median income of the population in the two states and which would better suit your client.

Step 3: Using your textbook and classroom atlases look at the topographical and Climate similarities between the two states. Make notations on which are the same and which are different and your choice for your client.

Step 4: Go to a computer and get on the information super highway and type in http://factfinder.census.gov/servlet/BasicFactsServlet

- Click on "Maps" and wait a moment
- Click on "age" by "show me" and change it to "Children 1990"
- By the "for" category click and make sure the box says "United States by State"
- Then click on "Go" and wait for the map to appear.
- If you want to save the map for your report, click and hold down the mouse and drag the arrow over the map until the map is highlighted, and then let go. Then go up to "edit" and click on copy. Then open up a word document and paste it in it.
- Make notations on which are the same and which are different and your choice for your client.

- Repeat the above steps for the following topics in the "for" box

i. "Education 1990"
ii. "Income 1990"
iii. "Urban/Rural 1990"

Step 5: Type your report for your client justifying your choice for their residency and create a visual conveying and supporting your choice for their client all with the aid of a writing and visual rubric.

Got Park?
Or
If you build it, they will come!

By Mike E. Neilson
Danville Community High School
Danville, IN 46122; June 14th, 2002

Classroom sessions/estimated time: Three or four 73-minute class periods.

Grade level(s): High school students grades 9-12.

Purpose:

To provide students an opportunity to use GIS and GPS technology to evaluate, research, locate, and recommend where a new park should be located that will benefit the community.

Geography Standards addressed:

National Geography Standards	*High School Course Objectives*
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.	The student knows and understands how to use geographic representations and tools to analyze and explain geographic problems.
12. The processes, patterns, and functions of human settlement.	The student knows and understands the functions, sizes and spatial arrangements of urban areas.
14. How human activities modify the physical environment.	The student understands the evolving forms of present-day urban areas.
18. How to apply geography to interpret the present and plan for the future.	The student knows and understands how to use geographic perspectives to analyze problems and make decisions.

Indiana Academic Standards addressed:

World Geography	*High School Course Objectives:*
WG.1.3 Use locational technology (remote sensing, Global Positioning Systems [GPS] and Geographic Information Systems [GIS]) in order to establish spatial	Students will use maps, globes, atlases, and grid-referenced technologies, such as remote sensing, Geographic Information Systems (GIS), and Global Positioning Systems (GPS) to acquire and process information about people, places, and environments.

relations.	
WG.4.2 Develop maps of human migration and settlement patterns at different times in history, and compare to the present.	Students will identify and analyze the human activities that shape the Earth's surface, including population numbers, distribution, rural and urban land use. Using grid-based technology, such as remote sensing and GIS wherever possible, they will map the distribution of various human phenomena and look for spatial patters that the maps reveal.
WG.5.9 Develop possible solutions to scenarios of environmental change brought on by human activity.	Students will analyze ways in which humans affect and are affected by their physical environment.
WG.6.6 Evaluate the impact of human migration on physical and human systems.	Students will understand the influence of physical and human geographic factors on the evolution of significant historic events and movements. They will apply the geographic viewpoint to local and regional problems.

Background:

- Students will have had prior lessons in topographical maps, mapping skills, and experience with atlases, globes, and gazetteers.
- Students will be given a brief overview of GPS and GIS technology. Lectures based on PowerPoint presentations will introduce the technology but hands-on use will be practiced in the computer lab or the field. Several selected websites such as Terraserver will be investigated prior to this lesson so that students are familiar with the maps.
- Students will be introduced to the town park system by the park Superintendent Brad Andrews. Mr. Andrews will explain the history, area and facilities of our current park system.
- A member of the town Park Board will present the students with the problem of creating another park within the town boundaries.

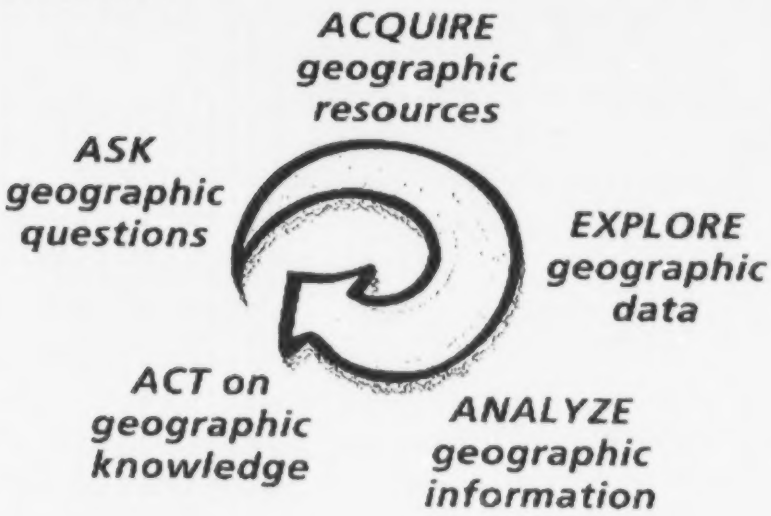
Materials Required:

The following materials will be required to perform the lesson.
1. Topographical maps of the town and county.
2. Access to the computer lab for 2 days.
3. Internet access to Terraserver and other websites.
4. Access to the town park for 1-2 days.
5. Clipboards for each team.
6. As many GPS units as possible. Students may bring their own units to facilitate their investigations.

7. Access to potential properties deemed suitable for the lesson.*
8. Other materials will be added as necessary.

*Instructor will arrange prior approval with property owners so that there are no trespassing issues.

Procedures:



Teaching Tips:

Day 1:

Prior to the students' arrival in class, maps of the state, county and town will be displayed around the classroom. Display an aerial map of the town utilizing the computer and projector.

Introduce the lesson by explaining that the Town Council has a dilemma and that they need the help of all the citizens to solve the current problem of overuse in our current parks. Allow the students 5-10 minutes to brainstorm about possible solutions to solve the problem. Students will write on the chalkboard possible solutions and the merits of each idea will be discussed.

Some students will invariably decide that a new park is needed. Tell the students that this will be the focus of the next few days.

Have students divide into groups of three or four.

*One group of two students will be assigned the task of recording the entire program using digital still and video cameras. They will create a PowerPoint program that explains the entire experience.

Explain that the students must utilize GPS, GIS and other technology to produce a map, a PowerPoint presentation and a brochure that will showcase their solution to the problem.

Take the students to the computer lab and direct them to view a quick historical growth of the town via aerial photographs.
(www.lib.purdue.edu/eas/aerialptab.html).
Students will get an idea of the growth patterns of the town and be able to hypothesize where most of the growth will occur in the future taking into account the current town and county infrastructure.

Give the students 20-30 minutes to investigate the maps and come up with a hypothesis for where they believe a new park could best serve the community.

Have Team members choose which task they will perform:
1. Mapping
2. PowerPoint
3. Brochure **Students will all share information and help gather data.*
4. Presentation

Day 2:

Field trip to the town parks to investigate what infrastructure is currently being utilized. A brief meeting with the park superintendent will give the students a refresher in the current parks and the stresses they receive because of overuse.

Students will break up into their assigned groups and investigate the park for 20 minutes.

Regroup at the new shelter building and spend 10-15 minutes discussing bare minimum facility requirements for a park and what would be ideal.

Return to the school computer lab to further investigate possible sites for the new park and contact landowners for permission to take GPS survey points the following day.

5-minute wrap-up to prioritize the 3 best areas for a new park.

If time allows, travel to one site of a potential park. This will probably be property already owned by the town and prior permission to investigate the area will be acquired.

Day 3:

Field trip to the 3 best areas for a new park. Students will have prior knowledge of how to create points using GPS units and then translate the information. Teams will be required to create corner points and, if time allows, other points for roads, restrooms etc will be created.
Other team members will take digital pictures of the potential park area for the brochure.

GPS units and digital cameras will be shared by each group in the event that there are not enough to go around.

Day 4:

Students will return to the computer lab and create a map using appropriate software and GIS maps. Borders and other landforms of the park will be drawn in. Other team members will create a brochure utilizing the student generated maps and digital pictures.

Products will be printed out and the students will then give a short presentation of their products.

Technology Connections:

Students will use hand-held GPS units to acquire points that will be utilized to draw borders for a new park on a computer generated map.

Students will download maps in the computer lab using a variety of GIS-based websites. Using appropriate software or other available software, the students will create borders, roads, facilities, and identify landmarks and other structures.

Students will use digital cameras (both still and video) and download the pictures for use in their brochures.

Students will create and print a brochure using Microsoft Publisher.

Students will create a PowerPoint presentation to explain their rational for creating their park in it's particular location.

One group will also utilize PowerPoint to produce a record of the entire lesson.

Assessment:

High Quality	Adequate Quality	Poor Quality
Students will create a high quality map using GIS technology.	Students will create an outline map using GIS technology.	Students do not create a map using GIS technology.
Students will utilize a minimum of 8 GPS points.	Students will utilize a minimum of 4-7 GPS points.	Students will have fewer than 4 GPS points.
Students will create a PowerPoint presentation to explain their project.Minimum of 10 slides.	Students will create a PowerPoint presentation to explain their project.Minimum of 6 slides.	Students will create a PowerPoint presentation to explain their project.Less than 6 slides.
Students will create a brochure explaining the benefits of their selection. Brochure will include:2 student generated maps.1 essay explanation of their project.Use of 4 or more graphics images.	Students will create a brochure explaining the benefits of their selection. Brochure includes:1 student generated maps.1 essay explanation of their project.Use of two or three graphics images.	Students do not create a brochure.
Students are active in classroom and field activities.	Students are active in either classroom or field activities.	Students are not active in both classroom and field activities.

Adaptations/Extensions:

- Assign students to create a new sewer plant that will be in an area to supplement the current system and not impede the development of the town.
- Challenge the students to investigate and produce a plan to create a bypass that will allow for more improved traffic flow.
- Have students investigate other communities of similar size and populations and compare their resources with that of Danville.
- Hypothesize what other amenities the town would like to acquire and how those items would affect the growth of the town both economically and population. What effects would this have on the environment?
- Students generate and maintain a website that displays their projects.

Resources:

Electronic resources:

http://atlas.ulib.iupui.edu/
An electronic atlas that contains information about the metropolitan Indianapolis area including surrounding counties.

http://in32.plexisgroup.com/map/index.html
A program that supplies data concerning Hendricks County including electronic maps.

http://missiongeography.org
A listing of the national geographic standards, teaching modules and a collection of maps.

http://plasma.nationalgeographic.com/mapmachine/
The National Geographic Society map machine website that allows students to create their own maps.

http://tiger.census.gov/cgi-bin/mapbrowse-tbl
Electronic political map atlas provided by the Census bureau.

www.terraserver.homeadvisor.msn.com
Mapping program that incorporates aerial and topographic maps.

http://www.census.gov/geo/www/maps/CP_OnLineMapping.htm
U.S. Census bureau link to mapping programs.

http://www.esri.com/gisforeveryone/
A website dedicated to a quick overview of GIS information.

www.lib.purdue.edu/eas/aerialptab.html
Provides many online maps for Indiana and other areas.

www.in.gov/dot
Indiana department of transportation website with electronic maps.

www.nasa.gov/
A clearinghouse of information about NASA including LANDSAT photographs and aerial photography.

Paper resources:

Indiana Atlas & Gazetteer, DeLorme, 1998, Yarmouth, Maine
Plat Map of Hendricks County
State Map, Indiana Department of Transportation, 2002
Town Map, Danville, Indiana, Greater Danville Chamber of Commerce, 2002

Human resources:
Brad Andrews, Superintendent of Parks, Danville, Indiana
Jeff Martin, Parks Commissioner, Danville, Indiana
Other individuals that the students may contact, including but not limited to:
Gary Eakin, Town Manager
Laura Qualitza, Town Planner
Rob Roberts, Superintendent of Public Works

Predicting Nations at Risk

By Bobbi Kroll In June 2002
For Eastbrook High School, Marion, Indiana

Time: Four or five fifty-minute classroom sessions for 9th-10th grade World Geography

Purpose:

This activity is designed to help students understand the "So what?"—or the international implications—of factors that indicate the developmental status of a nation.

Geography Standards

The World in Spatial Terms
- Indiana Geography Standard 1: Students will use maps and Geographical Information Systems (GIS) to acquire and process information about people, places and environments.
- National Geography Standard 1-B: Students will use maps and other geographic representations to analyze world events and suggest solutions to world problems. In this activity, the mapping of factors (GDP, infant mortality rate, etc.) in developing nations that may result in international distress is used as an attempt to predict areas of the world that need to be given special attention by developed nations.

Places and Regions
- Indiana Geography Standard 2: Students will acquire a framework for thinking geographically, including the location and unique characteristics of places. They will identify the … human characteristics of places.
- National Geography Standard 6-B: Students will explain how individuals view places and regions on the basis of their…social class, ethnicity, values, and belief systems. Many people in developed nations have a prejudiced view of developing nations. In this activity, groups will objectively chart and analyze data and research specific developmental problems faced by developing nations in their group's assigned region. The goal is to understand the difficulty of development and to empathize with developing nations. They will also hear an example of a tribal group who responded sacrificially to Americans after September 11, 2001.

Human Systems
- Indiana Geography Standard 4: Students will identify and analyze the human activities that shape the Earth's surface, including…cultural patterns, and economic and political systems. Using…GIS, they will map the distribution of various human phenomena and look for spatial patterns that the maps reveal.

- National Geography Standard 10-B: Students will analyze how cultures influence the characteristics of regions as exemplified by being able to analyze demographic data (e.g. infant mortality) to describe a region's cultural characteristics. Students will chart and map the statistics identified as being key to the stability or instability of a nation and predict potential "trouble spots".

The Uses of Geography

- Indiana Geography Standard 6(b): Students will apply the geographic viewpoint to local, regional, and world policies and problems.
- National Geography Standard 18-D: How to use geographic knowledge, skills, and perspectives to analyze problems and make decisions.

Students will observe and analyze the (charted and mapped) information to make observations, predictions, and recommendations regarding at-risk nations.

Objectives:

Upon completion of this activity, students will be able to:

1) List and explain the importance of factors (e.g. GDP) that indicate the level of development attained by a nation.

2) List specific data regarding high and low levels of these factors:

   a) Cite the GDP, infant mortality rate, etc. of one developed nation
   b) Cite the GDP, infant mortality rate, etc. of one developing nation

3) Discuss the relationship of these factors to the "health" or "distress" of a nation

4) Explain the following in essay form:

   (a) the major differences between developed and developing nations

   (b) the type / quality of relationship / policies developed nations should adopt toward developing nations.

Background:

This activity is based on a short article about developing nations that stated "a study by the U.S. Central Intelligence Agency has isolated the factors that predict the collapse of nations. Among the predictors: high infant mortality, autocracy; poor democracies, protectionism; and a large number of young adults in the population." (U.S. News and World Report, 2-12-95)

Using this as an international problem to research, students, working in groups, will culminate their study of developing and developed societies by charting and mapping these predictors, ultimately making their own predictions of "nations at risk" for their assigned region within Africa or Asia.

Leading up to this point, students will have already read, discussed, and completed activities on the following:

1. Economic systems—differences in agriculture (see reference to web site of "Mission Geography" listed in Materials below), manufacturing and services;
2. Types of government
3. Statistics related to standard of living (GDP, infant mortality, life expectancy, age groups)
4. Stages of population growth

This lesson plan uses ArcView software. The teacher needs to have a site license, have ArcView installed in a computer lab setting and lead the students through Module 1 so they have the basic skills for this program. If this software program is not available, see "Adaptations / Extensions" at the end of this lesson plan.

Materials Required:

- ArcView software from ESRI Press
  This software is a compilation of GIS lessons prepared for the teacher to use in the classroom. Here, it will be used to list the fields of information (GDP, infant mortality rate, age groups) necessary for this lesson and can produce choropleth maps (a web site example is listed below) to help students understand and analyze the data.
- Computers in a lab setting or multiple computers per classroom
  Sign up for computer lab one to two weeks in advance. Three days in the computer lab is recommended. Internet access is required. Students may double up on computers if necessary.

www.missiongeography.org (background, **strongly recommended**)
Once at this site, on the left margin, click on "MG Materials"; scroll down to "Grade 9-12 Module 2. These three lesson plans are excellent, dealing with agriculture in developing and developed nations. These were used in the main unit before this culminating activity and are highly recommended for laying the foundation for this culminating activity.

www.cia.gov/cia/publications/factbook/index.html (required site)
Lists the vital statistics on **all** countries—GDP overall and per capita; infant mortality, government, etc. Disadvantage: one has to look up facts one country at a time.

www.census.gov/ipc/www/idbpyr.html (required site)
Gives a current and projected population pyramid for each country.

www.eia.doe.gov/emeu/iea/table2.html (helpful site)
Chart listing the overall GDP of the countries of the world. Disadvantage: no information for several countries.

www.lib.utexas.edu/maps/world_maps/world_gdp96.jpg (helpful site) OR
www.map.cl/world/gdp.htm--fits on screen better (helpful site)
These two sites are examples of choropleth maps that display international GDP statistics.

A site to help students gain a better perspective vis-à-vis developed / developing nations, is an audio version of the Saturday, June 8, 2002 National Public Radio, Weekend Edition interview with Kimeli Maiyomah. Kimeli is a Maasai warrior from Kenya who is studying medicine at Stanford University and was at the UN building in Manhattan on September 11, 2001. The internet route to get to this audio-only interview is as follows:

www.npr.org/programs/wesat/index.html. Once here, click "Previous shows" in the right margin. Under the "2002" heading, click on June. Of the dates listed in June, click on June 08, 2002. Scroll about halfway down until the program name "Kenya Cows" appears. Click and listen. "RealPlayer" is required for listening to the audio. Running time is about 6.5 minutes. It is possible to write or email NPR and get a written transcript from them for a fee.

- One or several copies of The Economist "World in Figures", 2001 pocket edition. This is an invaluable source of international statistics for economics, health, political issues, urbanization, environmental issues, transportation, education, to name a few. World rankings of "The Quality of Life", page 26 are especially helpful.
- One or several copies of a current world atlas like Goode's by Rand McNally
- Handouts
  1) Statistics from G7 nations +... and current events nations
  2) Blank chart to record data for assigned countries within specified region
  3) Student Instructions Sheet
  4) Grading rubric

Procedures/Timetable:
(This is presented in sketchy format so as not to be redundant; for full details, see "Student Instruction" pages)

One week before
1) Divide students into groups of 4-5

2) Each group is to collect three (total) newspaper / magazine stories about countries in "distress"— war, famine, disease, drought. Groups are to share these stories with class.

One day before

Each group will turn in a list of countries that their collected news stories feature. The teacher will use this to write in the statistics for five of these countries on the chart of the G7 +… nations

Days 1 through 3

1) Share the news stories about troubled countries: Each group will summarize their news stories for the class. As they do this, the teacher will write the names of the countries on the board. Follow up these summaries with students' questions and observations about the stories.

2) Charts and Information:

(a) Statistics from G7 nations + current events nations

(b) Blank chart for recording regional data (on back side of G7/current event nations' statistics)

(c) Student Instruction Sheet (contains list of web sites)

(d) Grading rubric.

1) Statistics chart of G7 and Current Events Nations
Facilitate discussion as students observe, analyze and contrast the statistics of the G7 +… nations with the nations just discussed from the news.

2) Computer work: Blank chart + list of web sites + list of nations…
Each group will have a list of 15-20 nations in Africa and Asia (this is a one-semester course focusing on the regions of the Eastern Hemisphere). In the computer lab, using the listed web sites, each group will fill in the statistics for their assigned countries.

Once they have filled in the paper chart, they are to use the ArcView program to enter the chart data in order to make a choropleth map for each of the factors (see end of lesson plan for program instructions to do this).

After charting information, listen to the program called "Kenya Cows" from National Public Radio Weekend Edition Saturday, June 8, 2002 program.

Days 4 and 5

3) Predicting international "distress" areas; ensuing recommendations

From their chart, the group is to agree on three countries in their region that have the least
favorable combination of statistics.

Looking at the statistics of these three countries, the group will brainstorm various types of aid or cultural exchange that could help in the areas of weakness. They are to briefly research each country's major needs The group will write a proposal that includes three recommendations
which they believe will benefit the three countries.

4) Class presentation by each group
On outline map of the countries of the world (overhead transparency suggested), each group is to…
a) Outline the extent of their region
b) Color in the three countries they predict are most at risk in their region.
Display the choropleth maps of their region and share recommendations, explaining why they believe these will be effective in addressing the problems.
5) Essay assignment (homework)
Each person will write an essay (see rubric for expectations) that responds to the following:

It is known that certain qualities must be achieved in a society for the people within it to live relatively peaceful, healthy and productive lives. The level of economic productivity, length of life, the survival of infants/children, and literacy rates are some of the basic qualities that lay the foundation for societal well being. What relationship should developed nations have with developing nations, especially in these areas that produce quality of life? Should we provide aid? If so, what kind and to what extent? If not, why? How does the instability of a far-away nation affect us?

Adaptations: Since many teachers may not have ArcView software, this lesson is easily adaptable to paper maps. Once the chart of statistics (for the 15-20 countries) is filled in, students will produce an enlarged map of their region (use of copier enlarging feature, or tracing using overhead transparency map and paper—held with magnets—on the chalkboard). Five (machine) copies of this enlarged map need to be made. Students will divide the statistics for each factor (GDP, life expectancy, infant mortality rate, type of government, and % of young adults) into levels or categories, giving each level a different highly-contrasting color. Color gradation from red to yellow is recommended. Each map must have a key. Thus they will hand-make their five choropleth maps. Again, see www.map.cl/world/gdp.htm for an example of a choropleth map.

Assessment – attached

World Geography Student Instruction Sheet for Nations at Risk: Developed / Developing Nations—Statistics that make a difference - Attached

Suggested Country / Regional Lists - Attached

Nations at Risk Assessment

Work effort

Individual

3 Consistent initiative/effort; focused on work at hand; provided leadership / help when needed
2 Adequate initiative; focused on work sufficiently to accomplish it
1 Did not focus on work at hand well; inert

Group

3 High level of cooperation / coordination; content and project discussions showed desire to understand issues well; efficient and focused use of time
2 Adequate level of cooperation / coordination; content and project discussions not as frequent, but focused on understanding; good use of time
1 Low level of cooperation / coordination; few if any discussions on the issues; confused or ill-used time

Data

Accuracy of chart (paper and computer) and choropleth maps

2 Accurate; complete; easy to follow
1 Not totally accurate; not complete or not easy to follow

Depth of understanding as displayed in recommendations

3 Choice of three countries based on excellent understanding of the data; explanation of their decision is clear; recommendations are thoughtful, feasible projects that address the necessary issues and are based on the data
2 Choice of three countries based on adequate understanding; explanation is good;
recommendations are adequate, based on the collected data, and show a good understanding of the issues.
1 Choice of three countries is not explained adequately; recommendations seem random and not based on the data.

Class presentation

3 Information on assigned region is presented very clearly; displays command of data
2 Information is presented adequately; shows an adequate "handle" on the data
1 Information is not clearly presented; use of data has been neglected or avoided.

Essay

Content:

+3 Ideas are well organized and argued logically; there is extensive use of data; writing stays focused on topic.

+2 Ideas are adequately organized; there is adequate use of data; writing is mostly focused on the topic.

+1 Ideas are not stated clearly and are poorly organized; very little use of data; writing is only somewhat focused, if at all; very difficult to follow.

Language-in-use:

+3 The writer's meaning is clear in each sentence

+2 The writer's meaning is understandable in spite of occasional errors

+1 The reader has to reread parts of essay to understand it; frequent errors

World Geography
Student Instruction Sheet for
Nations at Risk:
Developed / Developing Nations—Statistics that make a difference

You will be working in a group. In that group you will be assigned 15-20 countries in Africa or Asia to research. Beginning today, your group is to collect **three** (total) newspaper / magazine stories about countries that are in "distress"—war, famine, disease, drought. You are to be ready to explain these stories to the class. At most, two of these three stories can be about war. Do NOT just look on the front page of the newspaper. Look through the entire paper. Go to the library and look through newspapers from other cities. There might even be extra credit for the group(s) that show obvious effort to find stories not emphasized by our American press.

On _____, a list of the countries in your group's collected stories will be due.

1) **Share the news stories about troubled countries**
Your group will have 10-12 minutes to discuss your stories and get organized to share. Each group will summarize their news stories for the rest of the class. One of the group members will to point out the countries on the world map.

2) **Charts and information:**

(a) Statistics chart of G7 and Current Events Nations
Observe, analyze and contrast the statistics of the G7 +…nations with the current event nations just discussed. What do you see? Why are these factors significant? What do these numbersreveal about life there? How do these numbers indicate the level of "health" within a country?

(b) Computer work: Blank chart + list of nations… In the computer lab each group will fill in the statistics for the assigned 15-20 countries on the blank chart using the following two web sites:

www.cia.gov/cia/publications/factbook/index.html
Lists statistics on all countries—GDP, infant mortality, life expectancy, government, and population

www.census.gov/ipc/www/idbpyr.html
Has population pyramids for each country. In order to get the % needed for this column of information, closely approximate the number of males and females in the 15-19 and 20-24 age

categories. Divide that total by the total population number taken from the CIA web site above.

Once you have filled in the paper chart, use ArcView to copy the chart data and make a choropleth map for each of the factors. See the following web site for an example of a choropleth map: www.eia.doe.gov/emeu/iea/table2.html At the end of this process, you will have five maps showing color gradations, one for each factor.

(c) National Public Radio Weekend Edition Saturday, June 8, 2002 program. Listen to the program called "Kenya Cows"—via ONE computer per group. www.npr.org/programs/wesat/index.html. Once here, click "Previous shows" in the right margin. Under the "2002" heading, click on June. Of the dates listed in June, click on June 08, 2002. Scroll about halfway down to the program name "Kenya Cows". Click and listen.

3) **Predicting international "distress" areas; ensuing recommendations**

From the chart and maps, agree on three countries in your region that have the least favorable combination of statistics. List these countries and explain, in writing, why these were chosen. Looking at the statistics of these three countries, brainstorm (one student should be chosen as recorder) various types of aid or cultural exchange (agricultural, educational, medical, and/or business) that could help in the areas of weakness. Briefly research each country's major needs and, if possible, find out what help is being given that country already. If there is not class time for this, you (plural) must research at home. The group will write a proposal that includes three recommendations which, based on collected data, should benefit the three countries.

4) **Class presentation**

On outline map of the countries of the world (overhead transparency suggested), each group is to…

a) Outline the extent of their region
b) Color in the three countries they predict are most at risk in their region.

Display the choropleth maps of their region (may do this on Power Point) and explain why they believe these three countries are the most "at risk" in this region.

Share their recommendations, explaining why they believe these will be effective in addressing the problems and how it will, hopefully, help prevent this country from collapsing or having troubles of international consequence.

To turn in:

(1) the explanation behind choosing the three countries;
(2) three recommendations;
(3) five choropleth maps of regional statistics.

5) **Essay assignment (homework)**

Each person will write an essay (see rubric for expectations) that responds to the following:

It is known that certain qualities must be achieved in a society for the people within it to live relatively peaceful, healthy and productive lives. The level of economic productivity, length of life, the survival of its infants/children, and literacy rates are some of the basic qualities that lay the foundation for societal well being. What relationship should developed nations have with developing nations, especially in these areas that produce quality of life? Should we provide aid? If so, what kind and to what extent? If not, why? How does the instability of a far away nation affect us?

Suggested Country / Regional Lists

Group #1
Western Sahara
Morocco
Algeria
Libya
Tunisia
Egypt
Saudi Arabia
Yemen
Oman
United Arab Emirates
Qatar
Congo
Bahrain
Congo
Kuwait
Iraq
Iran
Turkey
Syria
Jordan
Lebanon
Israel
(Chose to leave out Cyprus)
Swaziland)

Group #2
Mauritania
Mali
Niger
Chad
Nigeria
Burkina Faso
Senegal
The Gambia
Guinea-Bissau
Guinea
Sierra Leone

Liberia

Cote d'Ivoire
Ghana
Togo
Benin
Cameroon
Equatorial Guinea
Gabon
Central African Republic
(Chose to leave out Madagascar, Lesotho,

Group #3
Sudan
Ethiopia
Eritrea
Djibouti
Somalia
Kenya
Tanzania
Uganda
Rwanda
Burundi
Dem. Rep.

People's Rep.

Angola
Namibia
Zambia
Zimbabwe
Botswana
Malawi
Mozambique
South Africa

Group #4
Russia
Georgia
Armenia
Azerbaijan
Afghanistan
Kazakhstan
Kyrgyzstan
Turkmenistan
Uzbekistan
Tajikistan
India
Pakistan
Bangladesh
Nepal
Bhutan
Sri Lanka

Group #5
Myanmar
Thailand
Malaysia
Indonesia
Brunei
Singapore
East Timor (optional)
Philippines
Laos
Cambodia
Vietnam
Taiwan
China
Mongolia
Japan
North Korea
South Korea

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